

**State of the Art (SOTA)
Manual
for Asphalt Plants**

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State of New Jersey
Department of Environmental Protection
Air Quality Permitting Program

**State of the Art (SOTA)
Manual for Asphalt Plants
Section 3.4**

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3.4.i Abbreviations

| | |
|-----------------|---|
| CFR | Code of Federal Regulations |
| CO | Carbon Monoxide |
| NAPA | National Asphalt Pavement Association |
| NJAPA | New Jersey Asphalt Pavement Association |
| NJDEP | New Jersey Department of Environmental Protection |
| NO _x | Nitrogen Oxides |
| NVE | No Visible Emissions |
| ppmvd | Parts Per Million By Volume, Dry Basis |
| RACT | Reasonable Available Control Technology |
| SOTA | State of the Art |
| SO _x | Sulfur Oxides |
| THC | Total Hydrocarbons |
| VOC | Volatile Organic Compounds |

3.4 STATE OF THE ART MANUAL FOR ASPHALT PLANTS

3.4.1 Scope

These SOTA performance levels apply to all newly constructed, reconstructed, or modified batch type or drum type hot mix asphalt plants.

3.4.2 SOTA Performance Levels

| Pollutants | Emission Limits | | Units of Standards |
|-------------------|-----------------|----------------------------|--|
| | RACT | SOTA | |
| CO | 500* | 250 | ppmvd @ 7% O ₂ |
| THC | 250* | 125 | ppmvd @ 7% O ₂ |
| NO _x | 200** | 200 | ppmvd @ 7% O ₂ |
| Visible Emissions | 20 | <5 or No Visible Emissions | % opacity or NVE |
| SO _x | N.J.A.C. 7:27-9 | | Wt % Sulfur or Lbs./ 10 ⁶ BTU |
| Particulate | 0.02 | | gr/ scf |

* If located at a major facility.

** If it has the potential to emit greater than 25 tons per year.

Note: All concentration levels are one hour averages except for opacity.

3.4.3 Technical Basis and References

3.4.3.1 Basis for the Recommended SOTA Levels

- Results from NJDEP compliance testing and emission monitoring programs.
- Seventy-four permit files (10 Drum & 64 Batch plants) were reviewed for the preparation of this manual. Out of the 74 facilities all conducted stack testing for CO and THC but only 22 plants conducted stack testing for NO_x.
- Correspondence from Technology Department; Gencor Industries Inc., Hauck manufacturing Co., Inc. (burner manufacturer), Astec Industries (plant manufacturer), and North America combustion burner manufacturer.
- National Asphalt Pavement Association (NAPA) study # 166 printed December 1993 by the NAPA.
- The work compiled within the manual was prepared through the combined efforts of

the NJDEP-lead contact: Mike Adhanom and the NJAPA Industry SOTA task group: chair, Rich Gribbin with the assistance of Bob Frank, George Conway and Richard Meyers.

F. New Jersey Asphalt Pavement Association (NJAPA) Environmental committee.

3.4.3.2 Available Technologies for Achieving Compliance

- A. Particulate: Use of a dry baghouse dust collector based on the following styles: Pulse Jet type, Plenum pulse type & Reverse air type. All of these styles of dust collectors operate more efficiently when used in conjunction with primary collectors ahead of them removing the heavier media from the dust laden air stream. Styles of these primary collectors are: Knockout box, Cyclone, Multi-tube collector & Multiple cyclone arrangements.
- B. Carbon Monoxide: Good combustion practice, refractory stabilized burner, counterflow drying, or use of natural gas for fuel.
- C. Nitrogen Oxides: Natural gas fuel, periodic burner adjustment or low NO_x burner.
- D. Total Hydrocarbons: External mixing either in batch tower or continuous coater, counter flow drying, natural gas fuel, or mixing chamber gas recirculation.

3.4.4 Recommended Review Schedule

The anticipated review date is five years from the effective date of this manual.